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Sex Composition of Living Children Against Socio-Economic Variables While Accepting Family Planning Methods

Introduction

IN India as a whole, fertility decline has stagnated at more than 3 live-births per woman -•- (M H F W 1993). The reason being attributed to this is that the fertility level of younger married women, aged less than 30, has changed very little while that of older married women aged 30 and above has declined sharply due to the adoption of terminal methods of family planning. To bring further decline in fertility, policy makers are contemplating to popularise the use of temporary methods among younger women. While it is advisable to popularise the use of temporary methods for achieving a desired spacing between births and thereby improve maternal and child health, it is hard to believe that sustained decline in fertility would occur by popularising the use of only temporary methods. This is because of the strong attitude among parents to achieve a desired number of male and female children or favourable sex composition of living children. This pessimistic view has emerged after examining the data collected for an evaluation study of family planning programme in a district where the programme is highly successful when compared to its socio-economic development. This has been due to a perceptible change in fertility attitudes from high to low family norm. In spite of this, there are wide variations in the adoption of family planning methods in the district. However, this variation can be explained by the parental desire to achieve specific number of male and female children which is far larger than the socio-economic factors. Therefore, to increase the adoption of family planning methods beyond the observed level is not feasible in the presence of strong cultural preference for particular sex composition of living children. In view of this, one would be tempted to argue that by promoting the use of only temporary methods, the observed high fertility among younger women will be shifted to older ages. This may result in a very slow decline in fertility during the initial period immediately followed by the adoption of temporary methods in younger ages and stagnation in fertility decline thereafter. This is contrary to the expectation of the Ministry of Health and Family Welfare. One would expect sustained decline in fertility if the family planning programme can promote the use of temporary methods among younger

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women and also achieve high level of adoption of terminal methods among older women. Such an achievement is feasible only when parents attitudes change towards achieving a desired number of male and female children to small family norm of two children.

Sex Composition of Living Children vs. Other Variables

In a large number of studies, sex composition of living children has been associated with other variables while analysing the differentials of acceptance of family planning methods. That means, the strong cultural preference for sex composition of living children has been assumed to have similar influence as that of other variables while accepting family planning methods. In such attempts, the relative importance of sex composition of living children as compared to other variables gets concealed leading to misleading conclusions.

In India, h igh cu Itural preference for more than one son and a daughter has been observed in many studies (Sarma and Jain 1974; Vig 1981; Das 1984; Lahiri 1984; O R G 1990). A strong preference for more than one son is deeply embedded in the religious, socio-economic and cultural life of the Indian people (Cassen 1978:54; O R G 1990:24). It has changed very little in the recent decades (Das 1984: 1I8; O R G 1990: 24) in spite of continuous attempts made by the government to reduce the gender inequality. The social discrimination of female against male child is still evident in the society (Gupta 1994) and there are reports of extreme cases of even female infanticide in some pockets of India (Surya 1991; Rajaretnam 1993). While fertility is being positively influenced by the cultural preference for sons, family planning programme wh'ich was introduced in 1952 and aimed at controlling rapidly growing population has not been able to gain favourable acceptance among all socio-economic groups of population. Thus, there are two major factors contributing to variation in the acceptance of family planning methods, namely, socio-economic factors and cultural preference for sex composition of living children. Over the period, family planning programme has largely been able to reduce the variation arising out of socio-economic factors through effective motivation and communication. However, cultural preference for sex composition of living children has yet remained a major detrimental factor while accepting family planning methods. A similar observation has also been made in the case of Taiwan (Cassen 1978:55). The reason behind this, perhaps, lies in the sharp distinction between socio-economic factors vis-a-vis cultural preference for sex composition of living children. While the former reflect the individual behaviour and attitude, the latter reflects the community's attitude or group/ family behaviour. It may be pointed out here that the acceptance of the programme by the community is a decisive factor in many regions. In this paper we try to distinguish these two factors while studying their relative influence an the acceptance of family planning methods.

Brief Description of the Study Area

Relative socio-economic development in Mandya district and Karnataka state has been described in detail elsewhere (Raju *et al.* 1994). Some important indicators of socio-economic development are provided in Table I to appreciate the suitability of the study area

for highlighting the points made in the paper. Mandya is a typical in many respects unlike the rest of the districts of the state. While irrigation expansion in the district is far ahead of the state, industrial and social development is below that of the state as a whole (Table 1). Due to irrigation expansion in the district, transport and communication facilities have improved better than the state as a whole (D C O 1984). In addition, the district is physically small and compact with high village and population densities (Table 1). Therefore, accessibility to health and medical services is considered to be high. Population composition of the district is highly homogeneous with regard to religion, caste, language and landholdings (Table 1). More than 50 per cent of the total district population belong to a single peasant community viz., Vokkaligas caste (G O K 1986) and Gangadikara sub-caste (Rajapurohitand Koilpillai 1981). These relative advantages in the district, in general, may have facilitated health personnel at the periphery to render their services better. Health infrastructure facilities between the district and the state are, however, similar (Shanbhag 1992).

The district is able to achieve the highest percentage of couple protection (against pregnancy) rate of 55 in 1989 and lower population growth rate of 1.36 per cent during 1981 -91 compared to the state averages of 43 and 1.88 per cent respectively (Table 1). Inspite of the low socio-economic development in the district, the better performance of family planning programme is due to a perceptible change in fertility attitudes from high to low family norm (Rao *et al.* 1986). The fertility transition in the district is due to population pressure on land coupled with a very high dependency on agriculture (Raju *etal.* \ 993). This has generated a substantial demand for family planning methods in the district. As a result, a majority of the sterilization acceptors in the district did not complain of post operative complications. It is generally believed by the rural people that sterilization leads to physical weakness. It is also widely held by illiterate people that sterilization results in inability to do hard work (Reddy and Raju 1979). Such beliefs are found to be absent in Mandya district because of the high favourable attitude towards family planning programme. Therefore, such beliefs are not going to influence the family planning performance in general and the conclusions of the study in particular. Thus, the area selected for the study of parental preference for sex composition of living children versus other variables is appropriate.

Brief Description of Sampling and Respondents

The 644 sample women were selected from 14 villages in Mandya district. Villages were selected with equal probability from the total number of villages having population in the range 800 to 1000 in Mandya, Malavalli and Nagamangala Taluks. This is because the average population per village was 885 in 1981 census. In selected villages, every alternate household was interviewed if there was an eligible woman. A woman was eligible for interview if she was currently married and in the age group 15-49 with at least one living child at the time of survey. A minimum of one living child was a necessary condition while selecting women in order to narrow the focus on potential acceptors of family planning methods. By doing so, the number of acceptors of family planning methods will not be underestimated because the practice of family planning methods between marriage and first

TABLE I: SOCIO-ECONOMIC INDICATORS OF THE DISTRICT AND THE STATE

Indicators		Mandya district	Karnataka stale
Population, 1991[1]		1,642,220	44.806,468
Geographic area (km2), 1991 '		4.961	191,791
Per cent average annual population growth .rate. 1981-91 '		1.36	1.88
Population density (km-), 1 99 1 '		331	234
Village density (100 km2), I98P		24	14
Average village population size, I98I;		885	971
Per capita income at current prices, (IRN), 1988-89'		3.900	4.305
Per cent urban, 1991'		16.2	30.9
Per cent 1 iterate, 1 99 1 '	Male	50.5	56.4
	Female	31.6	37.3
Mean age at Marriage, 1 98 P	Male	26.5	26.7
	Female	18.5	19.5
Per cent couples effectively protected against pregnancy, 1989-90*		55.3	43.6
* Per cent irrigated area to the total cultivable area, 1988-89''		36	14
Per cent income contributed by agricultural sector, 1989-90''		52	34
Per cent male Worker in	Rural	84.1	77.0
agricultural sector, 199 17	Urban	25.9	11.9
Percent land holdings less than one hectare, 1985-86''		69	36
Percent Hindu Population, 1981''		93	86
Per cent Kannada language* as mother tongue, 198I[9]		91	65

Sources:

1. Registrar General ot'lndia 1991 Provisional Population Totals: Rural-urban distribution. *Census of India* 1991, Series-1, India, Paper-2 of 1991. New Delhi: K G I.

2. Director of Census Operations 1984 General Population Tables. *Census of India* 1981 Karnataka. Series-9, Part-ll-A, Bangalore, Director of Priming ami Stationery.

3. Government of Karnataka 1992 *Economic Survey-1991-92.* Bangalore: Planning Commission.

4. Director of Census Operations 1986 Social and Cultural Tables. *Census of India* 1981 Karnataka. Series-9, Part-1 V-A, Bangalore: Director of Printing and Stationery.

5. Government of Karnataka n.d. *Family Welfare. M.C.H. and Immunization Programme at a Glance in Karnataka, 1989-90.* Bangalore: Directorate of Health and Family Welfare.

6. Government of Karnataka 1991 *Statistical Abstract of Karnataka.* 1988-89. Bangalore: Directorate of Economics and Statistics.

7. Registrar General of India 1991 Provisional Population Totals: workers and their distribution. *Census of India* 1991. Series-1. India, Paper-3 ol 1991. New Delhi: R G I.

8. Director of Census Operations 1986 Household Population by Religion of Head of Households. *Census of India* 1981 Karnataka. Series-9. Paper I of 1985. Bangalore: Director of Printing and Stationery.

9. Director of Census Operations 19871 louscholcl Population by Language Mainly Spoken in the Household *Census of India* 1981 by *Karnataka.* Scries 9. Paper of 1987. Bangalore: Director of Printing and Stationery.

birth is very rare and also the practice of temporary methods in general is negligible in the rural community. Mandya district is not an exception to this. Field research was done during the period December 1991 to April 1992 and the data were collected by experienced interviewers through a structured schedule.

In the sample, 53 per cent of all women belonged to Vokkaliga caste, followed by 23.7 per cent to 'Other' castes like artisan, service and residual castes and 23.3 per cent to Scheddled castes. About 34 per cent of all women were literate. Thus, caste composition and literacy of respondents compare well with the district averages. According to the 1991 census, in rural Mandya district, 33.2 per cent of all females, irrespective of age and marital status, are categorised as workers (R G I 1991). By adopting the census definition of worker (R G I 1991: 5) in our sample, it is found that 65.5 per cent of all women were working and a large percentage of them were working on their own farm (31.5 per cent). This is because the proportion of landless labourers in the district, in general, was lower than the state average: 45 per cent against 55 per cent of the total workers respectively (R G 1 1991).

With regard to the fertility of the sample women, on an average an acceptor of family planning method had 3.4 live births and 3.0 living children. The average live births and living children per non-acceptor were 2.2 and 1.9, respectively. While the acceptors had more number of male live births and living children, non-acceptors had more number of female live births and living children. Although, fertility transition in the district had reached a low level, it has not yet declined to the level of achieving small family norm of two children in spite of high and sustained performance in family planning programme. About 72 per cent of all women had adopted family planning methods, and terminal methods were popular accounting for 96 per cent of all methods.

Results

As elsewhere in India, the population of Karnataka state also has a high preference for sons and a daughter. According to the Third all India survey conducted by the Operations Research Group in 1988-89, more than 50 per cent of the couples with only daughters were desiring to have sons and about a quarter of the couples with one son were desiring to have additional sons. There was also a strong desire to have a daughter when couples were deprived of female children (Table 2).

As we did not collect data on desired and additional number of sons and daughters a couple would like to have in the sample, we have presented only the percentage of acceptors of family planning methods by the sex composition of living children for the sample of 622' women in Table 3. When Tables 2 and 3 were compared it was found that there was a preference for more than one son in the state with the predominance of the preference for a son in the district sample. More than 85 percent of the women had accepted family planning

I. Twentytwo women whose lasl child age is 5 years and above, are excluded from the analysis assuming that they are likely to be secondary sterile.

TABLE 2: DESIRE FOR ADDITIONAL CHILDREN AND SONS BY SEX COMPOSITION OF LIVING CHILDREN, RURALKARNATAKA, 1988

Number of living		Desire for additional children	Desire for additional sons	Estimated number of couples (000)
sons	daughters			
0	1	81.0	78.8	369.06
0	2	55.8	54.2	229.37
0	3	57.7	57.7	93.52
0	4+	42.4	42.4	74.20
1	0	82.0	31.4	364.35
1	1	24.6	23.6	564.97
1	2	32.1	31.6	294.76
1	3	10.3	4.8	181.01
1	4+	16.3	16.3	105.21
2	0	21.2	7.3	364.68
2	1	8.1	1.9	521.75
2	2	5.4	4.0	267.10
2	3	0.0	0.0	61.37
2	4+	0.0	0.0	71.01
3	0	20.8	3.0	171.39
3	1	3.4	2.6	152.42
3	2	20.2	0.0	90.60
3	3	10.2	10.2	45.64
3	4+	16.7	16.7	8.63
4+	4+	9.4	3.1	232.39

Source. O R G 1990.

methods with combinations of one son and only daughters. In the district sample, the most unfavourable sex composition of living children for not accepting family planning methods were couples with no son and only daughters, or one son and no daughter (Table 3). Thus, the sample women exhibited parental attitude in achieving desired family size of one child of each sex rather than the desiring small family of two children.

To distinguish and study the relative influence of cultural preference for sex composition of living children and socio-economic factors, we have used the technique of the analysis of variance (ANOVA) by introducing socio-economic factors as independent variables and acceptance of family planning method as a dummy and dependent variable in model one; and by introducing socio-economic factors and sex composition of living children as independent variables and acceptance of family planning method as a dummy and dependent variable in model two. We have selected caste, family structure, the woman's participation in labour force and literacy under socio-economic factors for this purpose. Sex composition of living children fell under two categories. The first category consisted of all unfavourable combi-

nations such as couples with no son and only daughters or one son and no daughter, while the remaining combinations were categorised as favourable.

TABLE 3: PERCENTAGE *Of* ACCEPTORS OF FAMILY PLANNING METHOD BY SEX COMPOSITION OF LIVING CHILDREN, RURAL MANDYA DISTRICT. 1991-92

Number of living		*Percentage Of FP acceptors*	N
sons	*daughters*		
0	1	16.7	42
0	2	32.4	34
0	3+	31.8	22
1	0	18.8	64
1	1	84.9	119
1	2	86.5	74
1	3+	94.7	38
2	0	96.6	58
2	1	98.5	67
jf	2	100.0	23
2	3+	94.1	17
3+	0	88.9	27
3+	1	100.0	24
3+	2	100.0	7
3+	3+	100.0	6
All		74.0	622

The gross and net effects of socio-econom ic factors on percentage of acceptors of fain i ly planning methods have been presented in Table 4. The model, as a whole, and the *R*- were significant at 1 per cent level. While, current age as a covariate, caste, the woman's participation in labour force and family structure were significant at I percent level, literacy of women was not significant. The gross and net effects of caste changed very little when controlled for other independent variables and current age. However, the gross effects of the woman's participation in labour force and family structure reduced substantially when controlled for other independent variables and current age. Overall, the independent variables put together were able to explain only about 8 per cent of the total variation in the percentage of acceptors of family planning methods. And the explanatory power of the model increased to 22 per cent when current age was introduced as a covariate. Thus, current age has more explanatory power than the socio-economic factors that were considered in the model. In general, a non-working scheduled caste woman living in other than nuclear family was more unlikely to accept family planning methods.

We have presented the gross and net effects of socio-economic variables and sex composition of living children on the percentage of acceptors of family planning methods in Table *5.* Here again, the model, as a whole, and the R^2 were significant at 1 per cent level.

while the current age as a covariate, sex composition of living children, caste and the woman's participation in labour force were significant at 1 per cent level, family structure is significant at 5 per cent level and the literacy of women is not significant. It is seen that the gross effects of sex composition of living children and caste changed very little when controlled for other independent variables and current age, but the gross effects of the woman's participation in labour force and family structure reduced substantially when controlled for other independent variables and current age. All the independent variables were able to explain about 50 per cent of the total variation in the percentage of acceptors of

TABLE 4: GROSS AND NET EFFECTS OF SOCIO-ECONOMIC VARIABLES ON PERCENTAGE OF ACCEPTORS OF FAMILY PLANNING METHOD

Socio-economic variables	*Percentage of family planning acceptors*			
	Unadjusted	*Adjusted far independents*	*Adjusted for independents +covariates*	N
	Grand Mean		.740	
Caste*				
Others	.04	.03	.03	150
Vokkaliga	.02	.04	.03	330
Scheduled castes	-.10	-.12	-.11	142
(Eta and Beta)	(.12)	(.15)	(.13)	
Working status of woman*				
Non-worker	-.12	-.11	-.07	218
Worker	.07	.06	.04	404
(Eta and Beta)	(.21)	(.19)	(.12)	
Family structure*				
Nuclear	.06	.04	.02	366
Two or more liMW"	-.06	-.05	-.02	232
Others	-.28	-.21	-.12	24
(Eta and Beta)	(.18)	(.14)	(.07)	
Literacy				
Illiterate	.02	.00	.00	408
Literate	-.04	-.01	.00	214
(Eta and Beta)	(.06)	(.02)	(.00)	
Multiple R-		.084	.221	

"Couple with unmarried children is nuclear family and family consisting of another ever married woman (EMW) is two or more EMW.

Note: Main effects. If and covarialc arc significant at I per cent level, while two-way interactions are not significant.

*Significant at I percent level.

TABLE 5: GROSS AND NET EFFECTS OF SOCIO-ECONOMIC VARIABLES AND SEX COMPOSITION OF LIVING CHILDREN ON PERCENTAGE OF ACCEPTORS OF FAMILY PLANNING METHOD

Variables	*Percentage of family planning acceptors*			
	Unadjusted	*Adjusted for independents*	*Adjusted for independents + covariales*	N
			Grand Mean .740	
Sex composition of living children*				
Unfavourable''	-.51	-.49	-.45	162
favaourable''	.18	.17	.16	460
(Eta and Beta)	(69)	(.67)	(61)	
Caste*				
Others	.04	.01	.01	150
Vokkaliga	.02	.04	.04	330
Scheduled castes	-.10	-.09	-.09	142
(Eta and Beta)	(.12)	(.12)	(.11)	
Working status of woman*				
Non-worker	-.12	-.06	-.05	218
Worker	.07	.03	.03	404
(Eta and Beta)	(.21)	(.11)	(,09)	
Family structure**				
Nuclear*	.06	.01	.00	366
Two or more EMW"	-.06	.00	.00	232
Others	-.28	-.08	-.06	24
(Eta and Beta)	(.18)	(.04)	(.03)	
Literacy				
Illiterate	.02	.00	.00	408
Literate	-.04	-.01	.00	214
(Eta and Beta)	(.06)	(.01)	(.01)	
Multiple Kz		.503	.517	

"Sex composition of living: with no son and more than one daughter: and one son and no daughters are unfavourable. At least one child of each sex is favourable.

[b] Couple with unmarried children is nuclear family and family consisting of another ever married woman (EMW) is two or more EMW.

Note: Main effects. R^2 and covariate are significant at I percent level, while two-way interactions are not significant.

'Significant al 1 per cent level.

''Significant at 5 per cent level.

family planning methods. The explanatory power of the model increased very marginally from 50 to 52 per cent when current age as a covariate was introduced in the model.

The following two observations may be noted between the two models:

(i) While socio-economic variables were able to explain only 8 per cent of the total variation in the percentage of acceptors of family planning methods in model 1, the explanatory power of the model 2 increased to 50per cent when sex composition of the living children was introduced.
(ii) While the explanatory power of then model 1 is able to increase from 8 to 22 when current age was introduced as a covariate, the explanatory power of the model 2 was able to increase only from 50 to 52 per cent when current age was introduced as a covariate.

The above two observations point to the sex composition of living children as the most important factor in explaining variation in the percentage of acceptors of family planning methods than socio-economic factors in the sample. The current age of woman is important and its significance lies in parental desire in achieving favourable sex composition of living children. Therefore, the explanatory power of current age did not increase substantially in the presence of sex composition of living children in model 2, unlike in model I.

Although, parental desire to achieve favourable sex composition of living children has Jjeen very strongly influenced by cultural background of all major communities, it is possible to change the cultural norms on desired number of male and female children parents would like to have. However, it may be a very slow process, but policy makers can accelerate the process of change with systematic educational efforts at least in areas where the family planning programme has already achieved a good success. As already observed in the beginning of this section, the preference for more than one son was lower in Mandya district than in the state as a whole. In addition, an increasing number of women with unfavourable sex composition of living children were accepting family planning methods in the recent past. Among the acceptors of the family planning methods, women with unfavourable sex composition of living children constituted 10.8 per cent in less that 5-year period arid 5.9 per cent in 5-year and above period prior to the date of survey.

Of the 162 women with unfavourable sex composition of living children in the sample, 37 or 22.8 percent had accepted family planning methods. It is interesting to note why these women limited their fertility with unfavourable sex composition of living children. For this, we have presented the gross and net effects in Table 6. In the model, we have taken caste, family structure, the woman's participation in labour force and literacy as independent variables, current age as a covariate and percentage of acceptors of family planning methods as a dummy and dependent variable. While the main effects due to all independent variables are not significant, R^2 is significant at 5 per cent level. The individual effects due to the woman's participation in labour force is significant at 5 per cent level, but the remaining variables are not significant. The effects of current age as a covariate is significant at 1 per cent level and all two-way interactive terms are not significant. The variation explained due to independent variables (R^2) is 6.1 per cent and due to independent variables and current age is 13.8 per cent. The gross effects of each independent variable has been reduced when controlled for other independent variables.

The percentage of acceptors of family planning methods was higher among working women than among non-working women with unfavourable sex composition of living children. Therefore, partly, working women were accepting family planning methods despite having unfavourable sex composition of living children because they wanted to reduce the childbearing time in order to increase working time (Raju and Bhat 1994).

TABLE 6: GROSS AND NET EFFECTS OF SOCIO-ECONOMIC VARIABLES ON PERCENTAGE OF ACCEPTORS OF FAMILY PLANNING METHOD AMONG UNFAVOURABLE SEX COMPOSITION OF LIVING CHILDREN.

Socio-economic	*Percentage of family planning acceptors*			*N*
variables	Unadjusted	Adjusted for independents	Adjusted for independents + covariates	
		Grand Mean	.228	
Caste				
Others	.-.03	-.01	-.02	31
Vokkaliga	.03	.03	:02	90
Scheduled castes	-.03	-.05	-.03	41
(Eta and Beta)	(.07)	(.08)	(.13)	
Working status of woman**				
Non-worker	-.09	-.09	-.06	77
Worker	.08	.08	.06	85
(Eta and Beta)	(.19)	(.19)	(.14)	
Family structure				
Nuclear"	.01	-.01	-.04	71
Two or more EMW"	.02	.03	.05	79
Others	-.23	-.16	-.13	12
(Eta and Beta)	(.15)	(.12)	(.04)	
Literacy •				
Illiterate	.02	.00	.00	98
Literate	-.03	.00	.01	264
(Eta and Beta)	(.05)	(.01)	(.01)	
Multiple R-		.061	.138	

" Couple with unmarried children is nuclear family and family consisting of another ever married woman (EMW) is two or more EMW.

Note: K1 is significant at 5 per cent level and covariate is significant at I per cent level, while two-way interactions are not significant.

** Significant at 5 per cent level.

Conclusions

The observed stagnation in fertility decline was not due entirely to non-adoption of temporary methods or due to the choice of method of family planning. Strong cultural preference for sex composition of living children or parental attitude to achieve desired number of male and female children were the major determining factor while accepting methods, especially at the higher level of adoption. Such a phenomenon was clearly observed in Mandya district of Karnataka. Despite the best performance of family planning programme in the district, the parental attitude to achieve desired number of male and female living children was strongly evident at the time of accepting family planning methods. Although, there has been a noticeable transition in fertility from high to low family norm in the district, the fertility transition has not yet witnessed a substantial change in parental attitudes from achieving a desired number of male and female children to small family norm of two children. Therefore, to anticipate sustained decline in fertility, couple should adopt two child family norm rather than achieving the desired number of male and female children. Until such time, one may anticipate a stagnation in fertility decline. By popularising the use of temporary methods among younger women, the adoption of terminal methods in older ages will be delayed or decreased. Basu has argued that son preference can influence fertility far greater than what was suggested in another study based on an aggregate analysis of data from different countries (Basu 1992). Also, in some populations, fertility has declined to replacement level in the presence of preference for one son (Cleland 1994). However, it may not be feasible for fertility to decline to such a low level in the presence of moderate levels of infant and child mortality. In fact, fertility level isexpected to be high in a population which has a strong preference for sons as well as has been experiencing moderate levels of infant and child mortality (Basu 1992).

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